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**THE PARENTS'
NATIONAL EDUCATIONAL UNION.**

THE CHILDREN'S QUARTERLY.

**UNDER THE MANAGEMENT OF THE
AMBLESIDE OLD STUDENTS'
ASSOCIATION.
PRICE SIXPENCE.**

**"SEIZE HOLD OF GOD'S HAND
AND LOOK FULL IN THE FACE
OF HIS CREATION AND THERE IS
NOTHING HE WILL NOT ENABLE
YOU TO ACHIEVE."
RUSKIN.**

VOL XIII. NO. 3.

JULY, 1911.

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Members are requested to send their subscriptions in the form of postal orders, drawn to Miss Macfarlane, and if possible not to send stamps.

Contributors are requested to send their M.SS. to Miss Macfarlane at the above address. All contributions will be gratefully received, but the Editor reserves the right of selection. Please mark all communications—"Children's Quarterly" in left-hand Top corner.

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The Children's Quarterly.

Vol. XIII. No. 3.

July 1st, 1911.

EDITORIAL.

THE Editor's task this month is one of difficulty, yet she hopes to experience this difficulty more and more as the months and the years go by. Her readers will wonder why she grumbles if she wants the same thing to happen again. The fact of the matter is that she has more articles than she can print. Those who have contributed to Nature Notes, must not be disappointed that their discoveries are not made public; the Editor has done her best to choose special notes which she thinks will interest her readers. The weather has indeed favoured our expectations and Bird lists and Flower lists should be extra long this year; for Spring and early Summer are surely the best time in the year for lovers of Nature.

STARLAND.

MORE OF THE YELLOW FAMILY.

VIII. *Scorpio*. The Scorpion.

Which constellation we have already had in the Blue and the Brown Families.

IX. *Sagittarius*. The Archer.

This constellation is supposed to represent a Centaur, who for some reason or other is shooting at Scorpio. I cannot find any story about it, and as it does not contain any very important stars, I think it will be enough to remember its place among the Signs of the Zodiac.

X. *Capricornus*. The Goat.

This constellation is supposed to represent a "Sea Goat." Once upon a time the gods were driven from their home in Mount Olympus. The god Pan took the form of a Goat, and wandered about in the fields and



Some of the Yellow Family.

woods. One day he was attacked by a terrible monster named Typhon, and in order to escape with his life, Pan jumped into the Nile, and thereupon became half fish, half goat. There are no important stars in this

constellation for you to remember, but do not forget that he is Number X. of the Yellow Family.

XI. *Aquarius*. The Water Bearer.

Aquarius is supposed to represent Jupiter's Cup Bearer. You have read the little story about him in the Orange Family.

XII. *Pisces*. The Fish.

Once upon a time the beautiful goddess Venus was walking along the banks of the Nile, when she was suddenly surprised by the terrible monster Typhon. Seizing her baby son Cupid, she flung herself into the river, where Jupiter turned her and her child into Fish, and placed them among the stars.

This constellation is composed of faint stars, so it will be enough if you remember the name and position.

Now we have come to the end of the Signs of the Zodiac, and I hope you will now be able to find several of them, and that one day you will succeed in finding all!

D.O.

A PEEP INTO THE FAMILY LIFE OF A GANNET

You must not expect anything learned from me, for I am on holiday, and in holiday mood. I am seated on the sea-shore not far from the little village of Ballantrae, and the waves are break, break, breaking on the beach all the time. Across the water is Paddy's Mile-Stone or Ailsa Craig, a high round rock that stands sheer up out of the sea, and beyond are the grey peaks of Arran and the hills of the Mull of Cantyre.

Last night I was wandering along the sands wondering what I would write to you about, when I saw a

dead gannet lying on the shore, its bill pierced into a kittiwake. Both had evidently died fighting, though what was the cause of such a mortal combat no one will ever know. My mind began to play on the free, roving, adventurous life of the sea-birds. A few years ago I saw another gannet some miles to the north of here. It was a very, very windy day, and Mother Gannet was teaching her two children to dive, for all gannets are splendid divers; they just fold up their wings and drop like a stone into the sea, not unlike a lark when it is nearing the ground. But as you can guess, when a very high wind is blowing there is some skill needed to drop exactly on your prey, the wind would land you some feet from where you wanted to go. Mrs. Gannet had realized the difficulty, and, no doubt, had waited some time for a genuinely stormy day, so that she might practise her family in the greatest gannet art—that of falling to within a centimetre of the prey it is about to catch—(perhaps she would tell them it must be *within a millimetre*), no matter how high the wind, or how rough the sea. She had a fairly thick stick about two feet long which she dropped from a height of about thirty feet. The wind blew it some distance, and the instant it had touched the water, the two children (brother and sister I imagined they would be) dropped in from some height, and they too were blown a little out of their course. As soon as the stick had been secured, down swooped Mother Gannet, seized the stick, and soared into the air once more, and the whole lesson was repeated over and over, and over again. I watched the patient old lady for about half an hour, then continued on my walk. In about an hour I returned, and the three were still there, although a little to the north

of the spot at which I had seen them before, because a south-west wind was blowing, and the lesson was going on just as vigorously as ever.

If any of you are at the coast for your holidays this year, look out for this big white bird with a broad black band at the tip of the wing, and when you see it diving so cunningly remember the patient hours bestowed on it before it reached this stage of excellence, and the trouble it itself took before it was capable of such adroit manœuvres both in the air and the sea.

ISABEL D. TAYLOR.

DIVING.

Without the aid of appliances it may be difficult to explain some of the details of a diver's dress, but we must use our imagination and take the first opportunity we have, of seeing the actual appliances and of watching diving operations.

Before discussing the mechanism of diving it might be as well to look at the physical and physiological side. We are rather apt to imagine the dangers of diving to consist more in the nature of attack by marine creatures or the fouling of the air tube and life line whereas in actual practice the physical dangers, which are more or less constant, outweigh the occasional accidents.

We are always subject to a certain pressure due to the weight of the atmosphere. It is approximately 15 lbs. per square inch; this is known as the "atmospheric pressure." It is due to the weight of the miles of air pressing on the surface of the earth. Now it has been

ascertained that a column of water 33 feet high exerts a pressure of 15 lbs. per square inch.

Consequently if 33 feet = 15 lbs.

1 foot = $\frac{15}{33}$

= $\frac{1}{2}$ lb. nearly,

that is to say, every foot in height of salt water produces a pressure of a little under $\frac{1}{2}$ lb. on the square inch or roughly "one atmosphere." We can now easily understand that the deeper a body goes into the water the greater the pressure will be. It is this pressure which has to be counteracted by pumping air down to the diver. As air can only be pumped at a certain rate, should the diver suddenly fall or change his depth at a greater speed than that at which the air can be pumped to him, he will receive a very severe hug, or squeeze, due to the increased pressure of the water. This is what would take place were a diver to fall say 33 feet from a depth of 33 feet, he would have an additional pressure of 15 lbs. per square inch or say 2000 lbs. per square foot. The helmet being incompressible his body would be crushed into it. He would bleed at the nose, mouth and ears, and might even be killed.

When diving at greater depths a fall of 30 feet would not be so serious because the increase of pressure would be in a smaller proportion to the original pressure (pressure before the fall) than in the case mentioned above.

We will now consider another, and, in deep diving, a more dangerous condition—that of gases. We take into our lungs a certain quantity of air containing Oxygen (O) Nitrogen (N) and Carbonic Acid (CO). This last mentioned gas were it to accumulate would cause death, but this gas (which is what we breathe out),

is not allowed to collect, as the air in the helmet being slightly in excess of the water pressure forces it out by the exhaust valve, which can be regulated by the diver to suit himself.

Oxygen can be taken into the system and in excess will not likely cause any inconvenience. Nitrogen is the gas which gives most trouble in diving especially when working in deep water say about 50 feet. As the pressure increases, the blood (through the skin and by means of the lungs), absorbs a certain amount of Nitrogen. Should the diver rise too quickly the Nitrogen, instead of passing off naturally, forms bubbles. It is the formation of these bubbles which has to be avoided, because their presence is a source of great danger. They may find their way into the heart and cause death and get into the spinal cord and paralyse the the legs, or in less serious cases causes pain in the joints and muscles.

The chief preventative of the formation of these bubbles is that the diver should not stay down long enough to absorb too much Nitrogen, also to ascend the last 30 feet slowly so as to give the Nitrogen time to escape without forming these bubbles, the desaturation taking place in proportion as the pressure is decreased.

We will now consider the dress of a diver and the necessary appliances. The diver first puts on thick woollen underclothing and often a red cap (to keep his head warm!). With the help of his assistant he gets into his dress feet first. It is made in one piece and at the neck there is usually an inner collar or "bib" (which is close-fitting round the neck). The wrists are formed of rubber cuffs to ensure a tight fit. The corselet is put on next. It is a large flat collar forming part of the helmet made of tinned copper, and round the

outside edge are studs which pass through holes in the outer collar of the dress. The outer collar is lined with rubber, over this rubber is bolted a metal rim, so that the rubber forms a washer between the corselet and this rim. The boots each weighing about 15 lbs. are well fastened on. Then the head portion of the the helmet is screwed into the corselet. The life line and belt having been secured the pumps are started and finally the front glass of the helmet is screwed on, and the diver after having the leads, two heavy weights about 40 lbs. placed front and back, goes below weighing approximately 170 lbs.

A word or two about the helmet. The air comes in at the back and is led by three fan shaped tubes two to the side glasses and the remainder over the crown of the helmet to above the front glass, the object being to pass a current of air in front of the windows and prevent them becoming dimmed or smoked by the man's breath. The air is also well distributed. Should it be necessary the pumps are surrounded by a water tank to keep the air cool. The outlet valve is at the side and can be regulated by the diver. If a telephone is fitted to the helmet the button for "ringing up" is just below the front glass in which position it can easily be pressed by the chin. The transmitter is between ear and mouth. Some helmets have an electric lamp on the corselet. There is a small tap on the right of the front glass, known as a spit-cock. If the passage of air is not sufficient to keep the "windows" clear, the diver can put his mouth to the spit-cock turn on the tap from the outside and get a mouthful of water, then close the tap and squirt the window. If water collects between the necks it can be sucked up and ejected through the tap in a similar manner.

A diver's crew will usually consist of five, one on the life line, one on the air line, two pumping and one spare man to relieve the pumpers, a telephonist may also be required. As divers may remain two hours below when not working in deep water, we often need much patience to wait and see one come up.

When working on a muddy bottom the dress is blown out to make the diver more buoyant and prevent him sticking in the mud.

Taking everything into consideration, we may be thankful that our lot has not called us to be divers.

G. COOPER.

LIFE HISTORY OF THE DRAGON-FLY.

The most of us know a Dragon-fly when we see it flying swiftly through the air on a bright summer day. We wish to get another glimpse of those beautiful gauzy wings, and bright black and yellow stripped body which serves as a rudder as it flies upwards and downwards in search of a butterfly to eat. But if we only knew half its interesting history, we should not be content until we had caught it, put it into a large glass bowl, tied a fine net over the top and examined it closely and minutely.

Now some of you may know that Dragon-flies have two lives—a watery one, which is their youth and which is spent in ponds and ditches, eating so much, that you cannot help thinking they live to eat; and then follows an aerial life, the stage we know.

In this form one would think the Dragon-fly was old enough to know better than to make its appetite the main object in life, but it continues its greedy habits and is as

voracious as ever. Would that it could take a lesson from the butterfly, who has only a delicate appetite in its perfect and older form although in its caterpillar youth, it ate till its clothes burst down its back!

Let us examine the Dragon-fly—I mean the Common one, *Libellula depressa*—from its first appearance among us. You will easily find it in a stream or pond by poking up the mud with a stick and dragging your net through the muddy water. You will all like doing this, I am sure! Its body is rather short and flat, and at the end of its tail there are several projections—three long and two short ones. These can be separated or brought together as the grub wishes. When separated they form an opening so that water can pass into its body to its respirating organs, where the oxygen is taken in and the water is then thrust out by the tail so rapidly that the force of it drives the insect forward. This way of getting through the water is one of the peculiarities of this grub and now we must notice its marvellous method of getting food. Woe betide any insect, worm, small creature or fish that happens to come within its reach as it glides slowly along, for it means certain death to it! This larva has a remarkable under lip, which is long and has two very sharp hooks at its end. These hooks act as pincers and can be extended or laid across the face at the will of the insect, by means of a hinge. When a grub passes, the Dragon-fly grub extends these pincers and encloses its prey and throws the living meal into its mouth as the pincers close over its face, leaving it to all outward appearances an innocent-looking creature.

It goes on in this blood-thirsty manner for about a year, and in consequence becomes large and fat, and then that enormous appetite begins to dwindle, and the larva looks

so limp, and as though it really had had enough to eat and was going to die! But there is no need for alarm at this illness. It is only the preparation for a far more beautiful existence, which must cost some twinges of pain. He knows the saying: "It is always darkest before the dawn," and it holds good in the Dragon-fly's life. It feels ill now, but how delightful the aerial life, which is so rapidly approaching, is going to be!

It manfully climbs up the stem of some aquatic plant, and although its legs seem tired, so tired, it goes on until it is about a foot or so above the water and there it takes a rest. Presently the back begins to split, a few terrible struggles and the Dragon-fly emerges from its shell. At first the wings are shapeless but gradually they expand and the delicate tubes in them become filled with air, and then it makes a triumphal flight over the pond or stream, where it was born and spent its youth, and flies far beyond it "to fresh woods and pastures new."

Its large eyes, made up of thousands of tiny ones, rapidly see any butterfly that is flitting about, and it is after it in a moment. As usual the weakest goes to the wall, and the poor little butterfly is soon between the cruel jaws and its sunshiny life is over.

Before we take leave of the Dragon-fly, it may be consoling to know that this cruel insect has, in its turn, enemies to contend with. In the water the grub is sometimes eaten by other creatures, and the fly is pounced upon by birds, but on the whole it has been given many more advantages and means of self-protection than the majority of life's children.

C. H. M.

PORTFOLIO OF PAINTINGS.

Some very interesting and excellent studies have been sent to me this time. The paintings number 124 and were contributed by 61 members. I was glad to see the efforts that were made in drawing lambs and only wish there had been more attempts at this subject. It is always rather difficult to paint animals because you have to do them more from memory than in painting things that keep still and will allow you to look at them as often as you wish. With anything that moves you must take a look and then draw or paint what you remember, for by the time you look again it will probably have altered its position and you are lucky if you manage to catch it in just the same position again. Now when you *look* you should *think*, so that you may have a clear picture of it in your mind, you can then draw what you see in your mind and it does not matter if the real thing has walked away.

Tulips are by no means flat, yet, looking at some of the paintings that were sent me one might suppose they were. I think the flat Tulip painters must have been so much taken up with the bright *colour* that they had no thoughts left for the *form*; and yet if they had really looked and thought at the same time they would have found that the two go together, the colour being of a lighter or deeper shade according to the amount of light that the form permits the object to receive.

Many of you now seem to have grasped the essential points of perspective drawing. You will find it delightfully interesting if you persevere with it and will find that you are able to draw many things which you used to think too difficult.

I shall hope to see some splendid paintings on September 1st.
Subjects:—

- I. A spray of Sweet Peas.
- II. Cricketers (let this represent movement).
- III. Sketch of a gate (in garden or field).

Send the paintings by September 1st to Miss K. Loveday, c/o H. W. Plumtre, Esq., Fredville, near Dover.

RULES.

- I.—The Portfolio must be kept only one night, the date of receiving and sending on, entered; fine 6d. for breaking this rule. A post card must be sent saying the Portfolio has been despatched.
- II.—No Painting must exceed 15-in. by 11-in.
- III.—Paintings must be kept flat.
- IV.—Name, address and age must be put on the back.

V.—All work must be the member's own doing, and not copied, but advice may be freely given.

VI.—Subscription 1/- for each family, due in January.

VII.—The Portfolio can only be sent to the home address of members, not to schools.

VIII.—Members leaving home temporarily must make arrangements for the Portfolio to be forwarded to them. Any change of address must be sent on a post card, as the list in the Portfolio may not be back in time. All paintings from October to October are returned in January.

CLUB NEWS.

The Reading Natural History Club sends only its Summer programme which seems a delightful one.

An Exhibition of Work done by members of the P.U.S. is to be held at Reading in connection with the P.N.E.U. Conference. Members are invited to send nature note books, collections of pressed flowers, sea weeds, shells, fossils, etc., to Mrs. Harrison Jones, University College, Reading, not later than Saturday morning, July 8th.

Intending exhibitors should let Mrs. Harrison Jones know a week before this date in order that their names and the nature of their exhibits may be included in the catalogue.

We hope that this exhibition will be very successful.

NATURE NOTES.

May 1st. The cress I sowed April 11th is ready to cut. This morning when I was in the garden I saw a bumble bee looking for honey in a hyacinth, but I do not think he found any, partly because the hyacinths had been out a very long time, and partly because the bee did not stay in them long enough to get any. After that he flew to some forget-me-nots and then to some primroses, he dipped his trunk a very long way into them to get the honey out. Next he went to a plant of honesty and got honey there, then he went away and I did not see him again.

It is a lovely day, but very windy.

May 2nd. There is a great deal of moss picked off the roofs by the birds this morning, more than usual; there is always some moss picked off, but not so much.

May 3rd. Mother brought some little pale mauve flowers home that grow in the ditches; we do not know the name unless it is "water violet." Mother says she thought somebody called it that.

This morning as I was going to the sea I saw a little grey mouse run out from the grass at the side of the road and run right across the path into its hole in the grass at the other side; it ran very quickly over the path as if afraid of being seen, but it was just the colour of the mud in the road.

We saw a bird's nest in a tree, but it was turned over on its side and one egg left in it, and so deserted by the mother, the nest being taken. It was a thrush's nest. We also saw a nest with young birds in it. There has been a nest in a hedge in a garden near us. It was a thrush's nest and the mother would sit on it and let us watch it. The birds in this nest have flown now. I saw some silverweed leaves on the Station Road for the first time this year; I think they die down in the winter as I do not see them about then.

May 4th. There are a great many fir-cones about, I could not find any when I looked in February and I think it must be the season now. To-day I found a very funny one; it had opened at one side and nowhere else. There are a great many little seedling sycamores in the garden; they start with two leaves, one at each side, to feed on, and then shoot up sycamore leaves.

May 5th. We passed the ditch with the mauve flowers in and got some; the feathery green leaves go right down and form a root. We saw two pairs of partridges and a hare. I notice the trees on the Station Road above the station are not so forward as those below because they are more exposed to the wind, also that the ones opposite those below have smooth leaves. I don't know what kind they are, unless they are English poplar.

May 6th. We went to the sea this morning and saw a good many interesting things. First we saw a young sea-urchin; we put it in water, but it did not move at all, so I think it was dead. Then I saw a lump of what looked like barnacles sticking on to a groin, not as ordinary barnacles do but in a "lump." I picked it off and it was a mussel with barnacles stuck all round it. We put it on a large stone in the water but it did not stick, it put out its foot, that it generally sticks with, and crawled over the stone. Then I found a water-snail—I do not know what it is if it is not a water-snail because it has a shell like a periwinkle and is coloured like a whelk—I put it in the water and it crawled just like the mussel did. We saw a great many star-fish, *not* the common kind, but the "brittle," we do not seem to get the common kind here; they were all quite alive in the water, I saw one with all its legs broken off, quite near the body, but it was alive and moved. I saw a perfect razor shell and was just going to pick it up when I saw the fish's head just going into a hole it had made. But unfortunately I was too late to

stop myself touching it and the fish went in. We put it in water but it did not come out again. Then we saw some very small things, they were very curious, just like tiny flower buds—something like those inside a rhododendron bud in February, only larger—they were sticking to a groin, I think they must be the babies of something, perhaps barnacles just settling down, or they may have been sea-anemones. We put one in water, but it did not move. We saw several worm-casts and worm-holes in the sand, but we did not see any sea-mice as we often do. I saw a blue butterfly in the garden this morning, I think it is the first coloured one I have seen this year. The little mauve flower is called "Water Violet," and it belongs to the primrose family. The vetch is beginning to flower, so is the sycamore.

It is a nice day, but windy.

BARBARA JOAN HICK (aged 11),
Ivy House,

June 5th, 1911.

New Romney, Kent.

May 8th. When we were out for a walk we saw a tortoiseshell butterfly on a nettle, evidently choosing a leaf on which to lay her eggs. In about a week the yellowy-grey caterpillars come out and spin a web over a leaf and then they start feeding, but always coming back at night. They soon become chrysalides and then they turn into the perfect butterfly.

May 11th. We saw a peacock butterfly. It is brown with an eye similar to those on a peacock's feather, this is why it is called a peacock butterfly. We examined an apple tree, it has fat buds which open out into white flowers, behind the flowers is a knob which in the Autumn will turn into the apple, which is the fruit, its bark is very smooth.

May 13th. The laburnum, Solomon's seal and lupins are in bloom in the garden. The gooseberries are forming. The roses euphrosyne, Frau Karl Druschki, Paul Lede, and Una are in bud. We found some fish on the beach off the end of the pipe that comes from the creek. They are three-spined sticklebacks; we brought some home, but only one is alive now; we gave it pieces of meat to eat, but it did not touch them. We are going to change its water to-day, it will find little tiny animals in that to eat.

MARGARET BROCKLEBANK
(aged 10 years 4 months).

May 8th. Yesterday while out for a walk we saw a tortoiseshell butterfly resting upon a nettle leaf and noticed its beautiful terra-cotta colour spotted with black and edged with blue. We also picked some wild arums growing in a shady place.

May 9th. The chestnuts are out in bloom also the wisteria and the banksea rose. The apple blossom is out too, the raspberries are in bud and some of the cherries and currants are forming.

JOAN BROCKLEBANK

(aged 9 years 5 months).

May 26th. I have been watching a fly-catcher for about a week building just below the schoolroom window. The nest is composed of hay, hair, a little moss and some feathers, it is in a corner of the wall in a creeper. It has three eggs; they are very oval and have a blueish green ground with reddy brown splodges on them. This morning the hen was sitting on the nest anxiously turning its head from side to side while its mate caught flies on a rose tree.

MOLLY PHILLIPS (age 12).

May 1st. We went up the Hog's Back and by the side of a copse we found our first cowslips for this year and we heard the cuckoo. When we were coming home we saw a martin.

May 4th. We were going up Long Bottom and we heard nightingales and both heard and saw white-throats, yellow-hammers and tree-pipits for the first time this year. When we were coming back we saw a golden crested wren's nest in a fir tree.

JEAN MARY GIBSON

(age 10½, Class II., P.U.S.).

May 2nd. We found naked stalked teesdalia; this is the second year we have found it by ourselves.

May 3rd. We found golden saxifrage by ourselves by a stream; this is the first time any of us have found it here.

ANNE HUTCHINSON GIBSON

(age 9 years 4 months, Class II., P.U.S.).

TREE NOTES.

May 2nd. The copper beech has only one leaf on it yet. The willow has a few leaves about an inch long out on it. The oak has no leaves out on it yet.

JEAN MARY GIBSON.

May 2nd. The birch has just got leaves and a few flowers. The chestnut has small fingered leaves pointing downwards. The lime has a few leaves out, very crinkled.

ANNE HUTCHINSON GIBSON.

The following are some of the flowers identified by Miss Smyth:—

Water violet identified from New Romney. Salad burnet and orange hawkweed from Milverton, Somerset, though the orange hawkweed was probably not wild there. A lime twig was sent from Knutsford with galls on it, but the name of the gall fly which was asked for is not known by me.

Miss Smyth is at present travelling from place to place, but she hopes to have a settled address soon. In the meantime she would like all specimens to be sent to 93, Clark Road, Wolverhampton, whence they will be forwarded direct to her.